



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,230	03/25/2004	Roy D. Cideciyan	HITG.062A(0528)	6703
62630	7590	08/30/2006	EXAMINER	
DAVID W. LYNCH CHAMBLISS, BAHNER & STOPHEL 1000 TALLAN SQUARE-H TWO UNION SQUARE CHATTANOOGA, TN 37402			NEGRON, DANIEL L	
			ART UNIT	PAPER NUMBER
			2627	
DATE MAILED: 08/30/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/809,230

Applicant(s)

CIDECIYAN ET AL.

Examiner

Daniell L. Negrón

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6, 12, 13, 15, 17, 23, 24, 26, 28, 34, 35, 37, 39, 45 and 46 is/are rejected.
- 7) ☒ Claim(s) 3, 5, 7-11, 14, 16, 18-22, 25, 27, 29-33, 36, 38 and 40-44 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 7, 18, 29, and 40 are objected to because of the following informalities:

The definition of the function,  $f(a_{k-1})$ , has not been provided in the claims. Appropriate correction is required.

The recitation "... $a_{k+1}$  represents a bit to be detected at time  $k+1$ ..." lacks antecedent basis.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 6, 12, 13, 15, 17, 23, 24, 26, 28, 34, 35, 37, 39, 45, and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Dolivo et al U.S. Patent No. 5,060,088.

Regarding claims 1, 2, 4, 6, 12, 13, 15, 17, 23, 24, 26, 28, 34, 35, 37, 39, 45, and 46, the rejections applied to claims 1, 2, 4, 6, 13, 15, 17, 23, 24, 26, 28, 34, 35, 37, 39, 45, and 46 in the previous Office action mailed March 9, 2006 are herein repeated for the same reasons (see Response to Arguments).

### ***Allowable Subject Matter***

4. Claims 3, 5, 7-11, 14, 16, 18-22, 25, 27, 29-33, 36, 38, and 40-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2627

Regarding claims 3, 14, 25, and 36, prior art fails to disclose or suggest a read channel, waveform equalizer, signal processing system, or magnetic storage device comprising all the limitations of claims 2, 13, 24, and 35 respectively, further wherein a first parameter,  $k$ , is adjusted according to  $k = k - g \cdot (f(a_{k+1}) + f(a_{k-1})) \cdot e_k$ , where  $k$  is the cosine equalizer parameter for modifying the magnitude response,  $g$  is an update attenuation gain,  $f(\cdot)$  is a predetermined cosine function,  $a_{k+1}$  represents a bit to be detected at time  $k+1$ ,  $a_{k-1}$  represents a bit to be detected at time  $k-1$ , and  $e_k$  is an error signal based on a difference between a noisy equalized signal and a desired noiseless signal.

Regarding claims 5, 16, 27, and 38, prior art fails to disclose or suggest a read channel, waveform equalizer, signal processing system, or magnetic storage device comprising all the limitations of claims 4, 15, 26, and 37 respectively, further wherein a second parameter,  $j$ , is adjusted according to  $j = j - g \cdot (f(a_{k+2}) + f(a_{k-2})) \cdot e_k$ , where  $j$  is the cosine equalizer parameter for modifying the phase response,  $g$  is an attenuation gain,  $f(\cdot)$  is a predetermined cosine function,  $a_{k+2}$  represents a bit to be detected at time  $k+2$ ,  $a_{k-2}$  represents a bit to be detected at time  $k-2$ , and  $e_k$  is an error signal based on a difference between a noisy equalized signal and a desired noiseless signal.

Regarding claims 7-11, 18-22, 29-33, and 40-44, prior art fails to disclose or suggest a read channel, waveform equalizer, signal processing system, or magnetic storage device comprising all the limitations of claims 1, 12, 23, and 34 respectively, further wherein the coefficient learning circuit adjusts coefficients,  $w_i$ , according to  $w_i = w_i - g \cdot f(a_{k-i}) \cdot e_k$ , where  $g$  is a provided update attenuation gain and  $f(a_{k-i})$  is a predetermined cosine function.

***Response to Arguments***

5. Applicant's arguments filed June 13, 2006 have been fully considered but they are not persuasive. On pages 14 and 15, Applicant argues that Dolivo et al fail to teach or suggest "a coefficient learning circuit that adaptively updates coefficients for the equalizer based upon a cosine function." Examiner however respectfully disagrees since the read channel disclosed by Dolivo et al comprises a coefficient learning circuit (45) which adaptively updates coefficients (e.g.,  $K_n$ ) based on outputs (i.e.,  $U_n$  and  $Y_n$ , lines 41 and 23 respectively) from a cosine equalizer (Fig. 4, and column 5, line 62 through column 6, line 11 for further details). Therefore, it is considered that Dolivo et al discloses a coefficient learning circuit as claimed.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Art Unit: 2627

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniell L. Negrón whose telephone number is 571-272-7559.

The examiner can normally be reached on Monday-Friday (8:30am-5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne R. Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DLN   
August 22, 2006

  
WAYNE YOUNG  
SUPERVISORY PATENT EXAMINER